

What is claimed is:

1. An X-ray diagnostic system comprising:

an X-ray source irradiating an X-ray;

5 an X-ray detector detecting the X-ray;

a support apparatus configured to support both the X-ray source and the X-ray detector so that both the X-ray source and the X-ray detector are opposed to each other with a space left therebetween, a tabletop on which an object to be examined is laid being located in the space, the object being subjected to injection
10 of an X-ray contrast agent when the object is examined;

a fluoroscopic scan unit configured to relatively move one of both the tabletop and the support apparatus to the other and to perform a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other, the
15 X-ray contrast agent flowing substantially along the direction, thereby a fluoroscopic image of the object being provided along the direction;

an imaging parameter setting unit configured to set, at every region to be examined of the object, imaging parameters required for an imaging scan on the basis of the fluoroscopic image, the regions being at least continuous without a
20 gap along the direction determined with respect to the object; and

an imaging scan unit configured to relatively move the one of both the tabletop and the support apparatus to the other and, with the one of both the tabletop and the support apparatus relatively moved to the other, perform the imaging scan on the object on the imaging parameters set by the imaging
25 parameter setting unit.

2. An X-ray diagnostic system according to claim 1, wherein the imaging parameter setting unit is configured to accept operator's manually operated information and to set the imaging parameters in response to the
30 operator's manually operated information.

3. An X-ray diagnostic system according to claim 2, wherein the imaging scan unit includes means for controlling a radiation field of the X-ray on the object in the direction on the basis of the imaging parameters.
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4. An X-ray diagnostic system according to claim 3, wherein the

imaging parameter setting unit comprises means for setting, as one of the imaging parameters, a relative moving speed of the one of both the tabletop and the support system to the other depending on a speed of the X-ray contrast agent flowing in the object, wherein

5 the radiation field controlling means is configured to control the radiation field in dependence upon the moving speed.

5. An X-ray diagnostic system according to claim 3, wherein the imaging parameter setting unit comprises means for setting, as one of the
10 imaging parameters, a frame rate required for the imaging scan depending on a speed of the X-ray contrast agent flowing in the object, wherein

the radiation field controlling means is configured to control the radiation field in dependence upon the frame rate.

15 6. An X-ray diagnostic system according to claim 3, further comprising a region specifying unit configured to specify a specific region of the object, wherein

the radiation field controlling means comprises means for controlling the radiation field to an opening appropriate for imaging of the specific region in
20 response to an arrival of a position of the imaging scan at the specific region.

7. An X-ray diagnostic system according to claim 1, wherein the imaging parameter setting unit is configured to, from the fluoroscopic image obtained by the fluoroscopic scan unit, automatically recognize the region
25 through which the X-ray contrast agent flows and to set the imaging parameters based on a recognized result of the automatic recognition.

8. An X-ray diagnostic system according to claim 7, wherein the imaging parameter setting unit comprises means for automatically calculating, using a pattern recognition technique, the X-ray-contrast-agent flowing regions
30 from the fluoroscopic image and means for setting, as part of the imaging parameters, region by region, an X-ray collimating opening depending on the X-ray-contrast-agent flowing regions based on a calculated result of the calculating means,

35 wherein the imaging scan unit comprises means for controlling an X-ray collimator in compliance with the X-ray collimating opening.

9. An X-ray diagnostic system according to claim 7, wherein the imaging parameter setting unit comprises means for automatically calculating, using a pattern recognition technique, the X-ray-contrast-agent flowing regions from the fluoroscopic image and means for setting, as part of the imaging parameters, region by region, a relative moving speed of one of both the tabletop and the support apparatus to the other depending on a flowing speed of the X-ray contrast agent based on a calculated result of the calculating means,

wherein the imaging scan unit comprises means for controlling the relative speed of the one of both the tabletop and the support apparatus to the other.

10. An X-ray diagnostic system according to claim 7, wherein the imaging parameter setting unit comprises means for automatically calculating, using a pattern recognition technique, the X-ray-contrast-agent flowing regions from the fluoroscopic image and means for setting, as part of the imaging parameters, region by region, an X-ray collimating opening and a relative moving speed of one of both the tabletop and the support apparatus to the other depending on a flowing speed of the X-ray contrast agent based on a calculated result of the calculating means,

wherein the imaging scan unit comprises means for controlling an X-ray collimator in compliance with the X-ray collimating opening and means for controlling the relative speed of the one of both the tabletop and the support apparatus to the other.

11. An X-ray diagnostic system according to claim 7, further comprising:

a calculation unit configured to automatically calculate, using a pattern recognition technique, the X-ray-contrast-agent flowing regions from the fluoroscopic image obtained by the fluoroscopic scan unit; and

a control unit configured to automatically and in real time control a radiation field of the X-ray onto the object on the basis of a calculated result of the calculation unit, the X-ray being radiated from the X-ray source during acquisition of the fluoroscopic image provided by the fluoroscopic scan unit.

12. A method of X-ray imaging performed by the X-ray diagnostic

system comprising an X-ray source irradiating an X-ray; an X-ray detector detecting the X-ray; and a support apparatus configured to support both the X-ray source and the X-ray detector so that both the X-ray source and the X-ray detector are opposed to each other with a space left therebetween, a tabletop on which an object to be examined is laid being located in the space, the object being

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subjected to injection of an X-ray contrast agent when the object is examined,

the method comprising the steps of:

relatively moving one of both the tabletop and the support apparatus to the other and performing a fluoroscopic scan along a direction predetermined with respect to the object with the one of both the tabletop and the support apparatus relatively moved to the other, the X-ray contrast agent flowing substantially along the direction, thereby a fluoroscopic image of the object being provided along the direction;

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setting, at every region to be examined of the object, imaging parameters required for an imaging scan on the basis of the fluoroscopic image, the regions being at least continuous without a gap along the direction determined with respect to the object; and

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relatively moving the one of both the tabletop and the support apparatus to the other and, with the one of both the tabletop and the support apparatus relatively moved to the other, performing the imaging scan on the object on the imaging parameters.

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